**Properties of Light and Electricity**

**4-5 The student will demonstrate an understanding of the properties of light and electricity. (Physical Science)**

**4-5.1 Summarize the basic properties of light (including brightness and colors).**
**Taxonomy level**: 2.4-B Understand Conceptual Knowledge

**Previous/Future knowledge:** Students have not been introduced to the properties of light before this grade level. In 8th grade (8-6.8), students will compare the wavelength and energy of waves in various parts of the electromagnetic spectrum (including visible light, infrared, and ultraviolet radiation).

**It is essential for students to** know the basic properties of light, including brightness, colors, and being visible.

*Brightness*
- The intensity of light or *brightness* of light is related to the amount of light being seen.
- The closer the source of the light is, the greater the intensity or degree of brightness.
- The greater the distance the source of the light is, the lesser the intensity or brightness.

*Colors*
- Light, or "white light", is made up of all colors of light mixed together.
- If white light is passed through a *prism*, it can be separated into light of different *colors.*
- The colors are red, orange, yellow, green, blue, and violet.
- These are the colors seen in a rainbow.

NOTE TO TEACHER: Some textbooks include indigo (a part of the blue range) in the spectrum of colors.

*Visible*
- In order for an object to be visible, it must either give off its own light (be a source of light) or it must reflect light.
- The Sun, a candle flame, or a flashlight gives off visible light.
- The Moon and many objects around us reflect light in order to be seen.

**It is not essential for students to** know about wavelengths or frequencies of light associated with colors.

**Assessment Guidelines:**
The objective of this indicator is to *summarize* the basic properties of light; therefore, the primary focus of assessment should be to generalize the main points about basic properties of brightness and colors of light. However, appropriate assessments should also require students to *compare* objects of different brightness; *interpret* a diagram containing objects giving off light at different distances; *identify* colors that are part of white light; or *recognize* objects of different colors and brightness.